

Tech Brief

Cloudvue

Technical Brief 2020



www.cloudvue.io

The power behind **your mission**



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Introduction

This technical brief will outline key technologies and advantages of partnering with Johnson Controls and its Cloudvue solution.

Selecting a trusted partner for digital transformation of physical security has more critical implications than it ever has. Cloud solutions can carry unique and potentially devastating risks. These include cybersecurity (Wyze surveillance cloud service hacked, exposes millions of customer's data¹); corporate liability ("FTC files law suit against provider of surveillance cameras for software security breach²"); GDPR and personal data security (Amazon Ring cameras hacked³); catastrophic hardware failure ("Smart lock vendor bricks locks with software update⁴"); software security flaws ("Adobe Flash flaw, hackers could seize system and all data⁵"); government regulation ("what the McCain National Defense Act means for surveillance⁶"); and intellectual property infringement ("surveillance service providers in court over infringement of multiple patents⁷") among others.

The right platform and partner will mitigate risks and consistently deliver value over time. First launched in 1999, Cloudvue has securely uploaded and managed over 25 billion minutes of surveillance video from tens of thousands of cameras worldwide. It is backed by the innovations of more than 1,000 granted patent claims and engineering, security, and support from Johnson Controls offices worldwide.

**"Cloudvue is making the world a safer
place with innovative and globally
scalable cloud video surveillance."
- Satya Nadella, CEO Microsoft**

¹ <https://blog.12security.com/wyze/>

² <https://www.zdnet.com/article/ftc-files-lawsuit-against-d-link-for-router-and-camera-security-flaws/>

³ <https://www.nytimes.com/2019/12/15/us/Hacked-ring-home-security-cameras.html>

⁴ <https://www.theverge.com/circuitbreaker/2017/8/15/16151798/lockstate-6i-software-update-break-lock>

⁵ <http://bit.ly/2y5louJ>

⁶ https://www.ngaus.org/sites/default/files/2018-08/FY19-Conference-NDAA_0.pdf

⁷ https://insight.rpxcorp.com/litigation_documents/3924227

*Services provided by Smartvue Corporation since 1999, acquired by Johnson Controls in 2018

Architecture

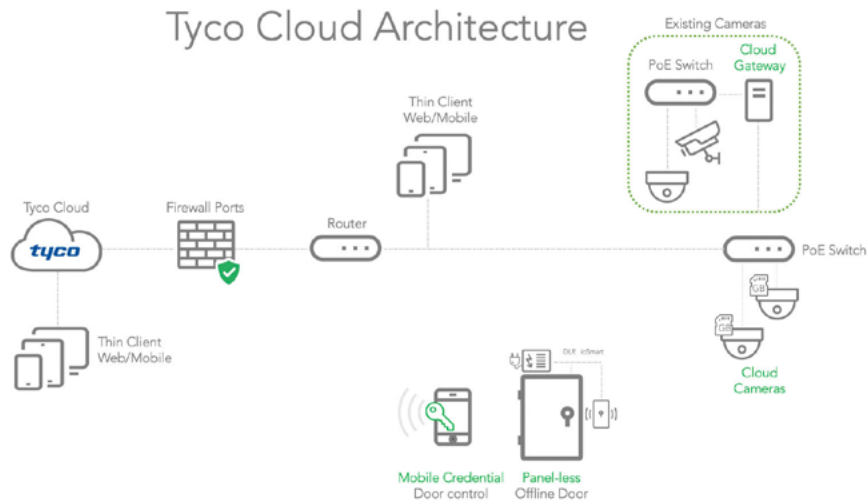
Cloudvue Technology Platform

Cloudvue is designed for video surveillance applications from one to thousands of locations. It is integrated with Illustra Cloud Cameras as well as and Cloudvue Gateways that support thousands of existing cameras from most of the leading manufacturers.

The Cloudvue platform is secured by Johnson Controls' industry-leading cybersecurity and personal data privacy. Its services are available through designated global data centers to meet worldwide performance and GDPR data storage requirements.

Network Architecture

The horizontally scalable Cloudvue works over almost any network from cellular to fiber with standard latency in milliseconds. It is architected as a secure multi-tenant platform for capture, transport, storage, management, analysis, and distribution of millions of different video sources over different capacity networks.



Cloudvue Video Surveillance guarantees 99.99% uptime reliability and is built on 20 years of cloud services experience. It is certified to work with the Motorola Command Aware system to deliver fast live video on-demand to police stations across the USA for any 911 emergencies.

Video Sources

Cloud Cameras

Cloudvue works seamlessly with Illustra Cloud Cameras offering plug and play installation in less than 60 seconds. Once connected, the Cloudvue delivers on-demand and unlimited video storage options as well as enterprise viewing, integrated analytics, and user management.



The Illustra Cloud Cameras connect directly to the Cloudvue and do not require the purchase, installation or maintenance of a Bridge, NVR, NAS storage device, or VMS software. Cloud Cameras also eliminate the potential security challenges of locally installed computing devices.

Cloudvue Gateways

If you have existing cameras and do not want to purchase cloud cameras, Cloudvue provides a complete line of cost-effective Cloudvue gateways which offer local video surveillance services and storage as well as a secure gateway to the Cloudvue VMS. They support the most common manufacturers such as Illustra, Hikvision, Dahua, Axis, Samsung, Arecont, Avigilon, Vivotek, Cisco, Panasonic and others. Cloudvue offers plug and play compatibility with thousands of other existing camera models using ONVIF standard.

Cloudvue Gateways are available in models that support from 1-100 cameras each with options of up to 120TB of storage. 4G LTE cellular gateways are also available for remote and mobile applications.



TCGD compact 1 to 4 cameras up to 80 days internal storage



TCGK compact fanless 1 to 16 cameras up to 80 days internal storage



TCGT 1 to 24 cameras up to 960 days internal storage
TCGP 1 to 32 cameras up to 1,600 days internal storage
TCGS 1 to 40 cameras up to 1,600 days internal storage



TCGX rugged 4G cellular 1-2 cameras up to 24 days internal storage



TCGRR 2U rack RAID5 1 to 100 cameras up to 4,800 days internal storage

Infrastructure

Global Availability

Managing surveillance across a country or on global scale is full of risk, complexity, and expense. Cloudvue uploads and secures millions of video clips daily with reliable services offered in 140 countries. Services are also available in sovereign regions such as China, Germany as well as in federal, state, local and tribal US government regions.



Connectivity and Bandwidth

Cloudvue transport technologies deliver reliable video service over all types of networks from DSL (with 175kbps upload) and 4G cellular to fiber with less than one second latency average. Cloudvue also offers integrated failover which buffers video when networks disconnect and then sends on reconnect.

Video surveillance is network intensive and can interrupt critical data such as point of sale. Cloudvue Video includes QoS as well as bandwidth management to control network utilization. Scheduled uploading enables off peak network use, such as video upload after normal business hours.

Cloud, Local, and Hybrid Storage

Resolution, bitrate, video quality, frame rate, format, analytics, and content all influence the size of video surveillance data. Advances in resolution such as 4K and expectations of HD video experiences contribute to the challenges of storage. Cloudvue provides options for local storage (in gateways or on devices), cloud storage, and hybrid combinations. Its patented recording services optimize video for different connection speeds and deliver storage bandwidth control. The Cloudvue API gives third party apps secure access to recorded video from any location on demand.

Services

Provisioning and Installation

The Cloudvue 60 second cloud service provisioning system has successfully handled thousands of DIY and professional video surveillance installations monthly. Cloud camera, gateway, device and cloud service provisioning using Cloudvue mobile apps, along with our innovative QR code system and integrated NAT traversal technologies enable setup in less than a minute without opening ports or other complex efforts.



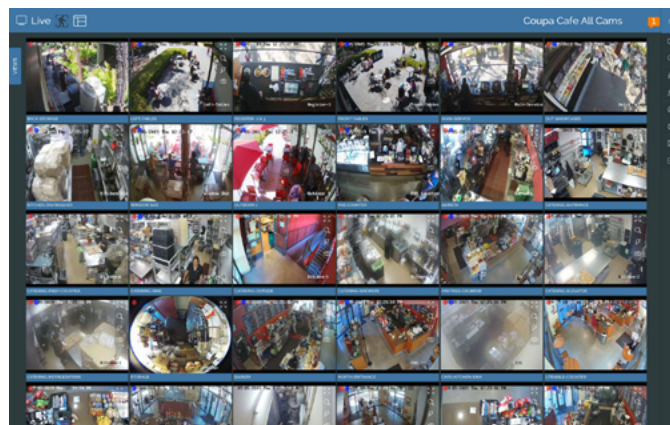
Systems may also be provisioned directly through almost any browser interface. The integrated scanning feature scans any network and automatically adds approved video sources to the Cloudvue.

User Experience Features

The Cloudvue delivers simple and elegant video experiences from cameras worldwide from almost any phone, tablet, laptop, or PC. It works with almost any web browser and mobile apps for iOS and Android.

Fast Live Video

Access live video from 140 countries around the world with millisecond live video display on average. Its unique technologies automatically adjust the video delivery based on the network connection. Create custom groups of cameras so users can view only "cash register cameras" and create custom access to cameras so users only see cameras they have permissions for. Cloudvue reliably delivers video on almost any network from cellular to fiber. Use the exclusive Motion View feature to only display video from cameras that detect motion, no more wasted time watching blank screens.

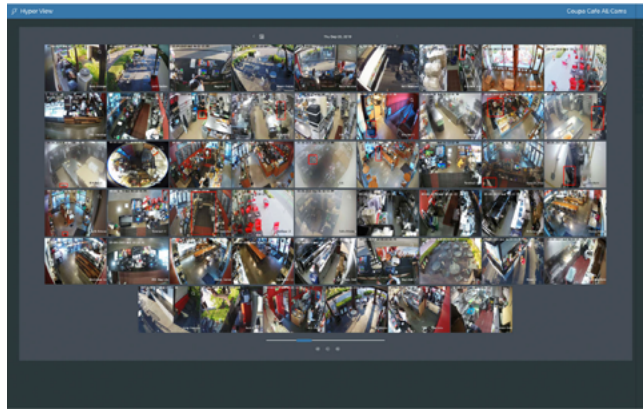


Search 24 Hours of Video in 60 Seconds

Only Cloudvue offers the patent-pending Hyper View feature that enables users to search through video from up to 100 cameras at the same time in 60 seconds or less. Scrub through recorded video, see motion and other event markers to find what users are looking for then instantly go to full HD video in one click.

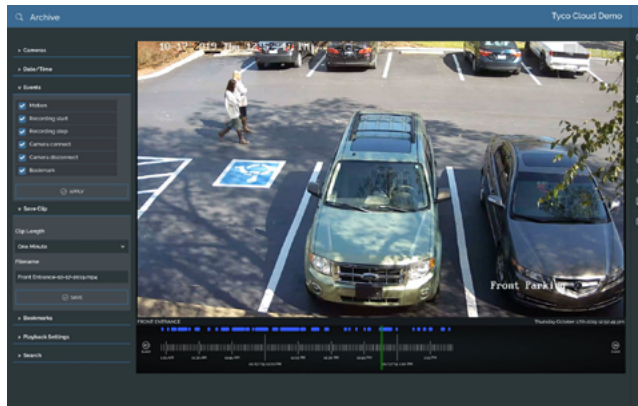
The power behind **your mission**





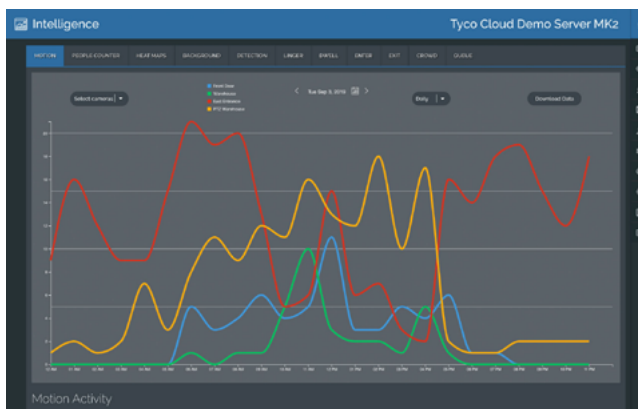
Simple and Powerful Recorded Video Playback

The point and click recorded video playback interface makes finding the right video a snap. Search by events, date, time, camera, then save and download any length clip or share it with anyone online using custom bookmarks. Zoom on any video clip and skip from event to event with one click. Playback video at 2-8X speed. See a preview of a motion event in the instant pop-up window on the timeline. Drag to any place on the timeline quickly. Pause and snapshot an important moment.



Motion Analytics Reporting

Run powerful motion analytics reports from any camera connected to the Cloudvue VMS. Sort and report by day, week, month. Download the report data to Excel.



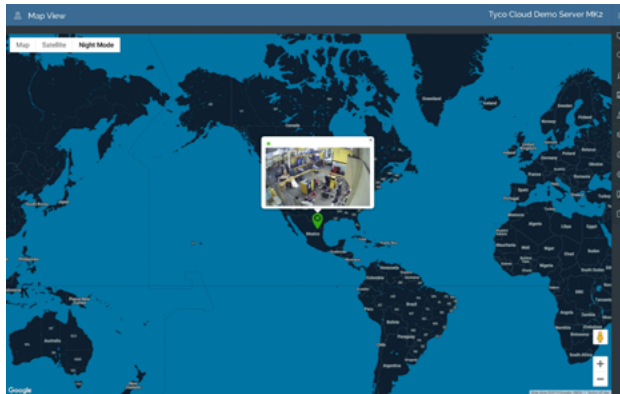
Analytics and Artificial Intelligence

Cloudvue supports analytics such as people counting. Run graphical reports on entrance and exit counts by camera, day, week, and month. Look for trends and download the report data to Microsoft Excel for offline processing.



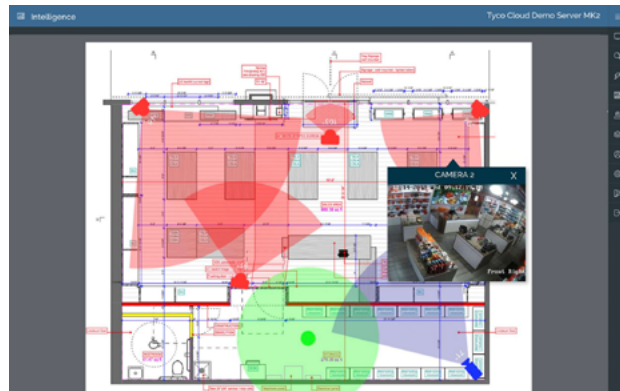
Watch Your World from One Screen

Map View gives you a view of all your cameras worldwide and click on any location to see the video. Also use Map View to see the status of all your cameras and instantly troubleshoot any of them.



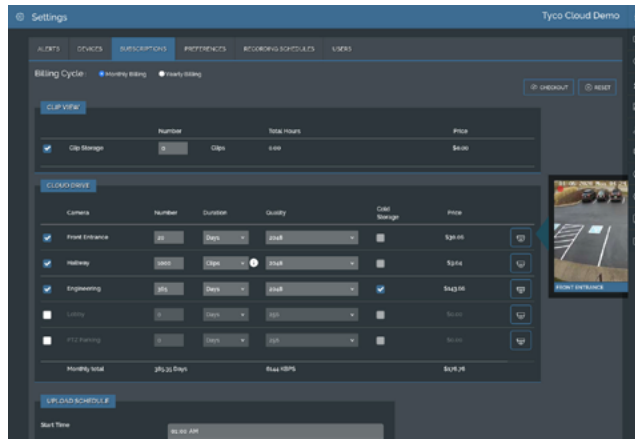
Map Cameras on Location

Drag and drop different camera types onto a map of your building floor and assign live cameras to them. Upload your own blueprints quickly. Easily view live video from any camera on your floor map with one click.



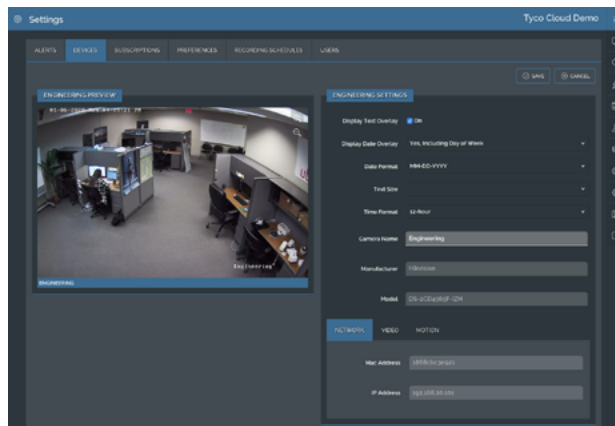
Record to Cloud On-Demand with Unlimited Flexibility

Cloudvue Video Surveillance offers unlimited flexibility for cloud recording in the easiest to use interface. Select all cameras or any single camera, enter the number of days to record (from one day to one year or more) or to record only when motion is detected, then pick your video resolution and click save. Create custom upload schedules to upload video to the cloud in the evenings or off prime time to save bandwidth. Turn on and off recording as needed.



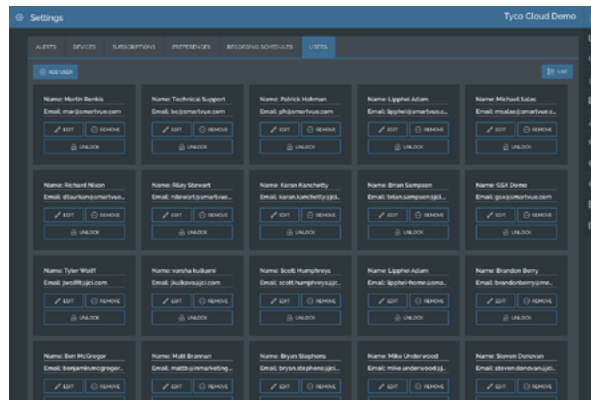
Edit Camera Settings Simply

Use the point and click camera settings interface to change camera options and test them live. Users can change motion windows and sensitivity, edit audio recording options, and set video quality settings.



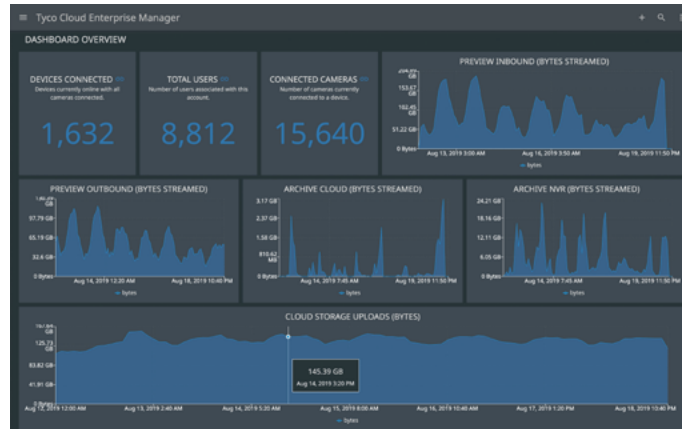
Add Unlimited Users and Permissions

Add new users to your Cloudvue and assign them any or all cameras as well as change permissions as needed (view only for example). Create custom views of cameras so users only see the cameras they need to see such as cash register cameras or warehouse cameras.



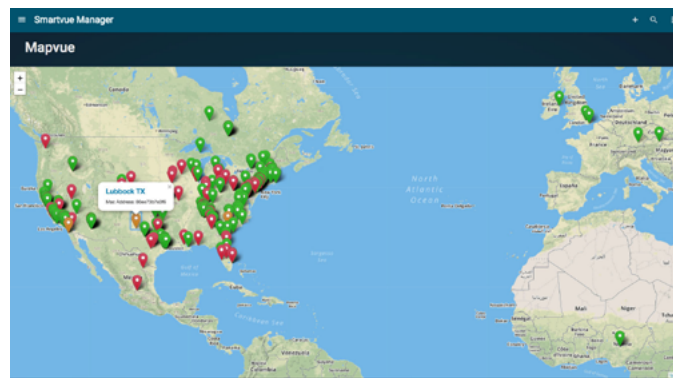
Track User and Camera Network Utilization with the Enterprise Dashboard

Track and report on bandwidth utilization, live video viewing, recorded video playback, cloud uploads, cloud storage and much more from one dashboard. See status alerts live in real time to address issues when they happen, not when it's too late.



Monitor Camera Status Worldwide Live

See the status of all cameras on a global map and click on any one to see details and then troubleshoot instantly.



Find Trouble Quickly

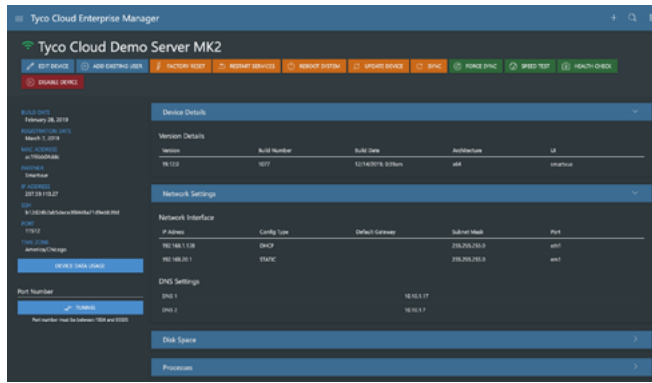
Search and sort cameras by those which need attention. Yellow status indicates trouble, click on settings for that camera to troubleshoot remotely.

The screenshot shows the 'Tyco Cloud Enterprise Manager' 'Search devices' screen. The table below lists camera details:

Search criteria	STATUS	Name	MAC Address	IP Address	Port	Actions
Search all fields	Green	DCA 188 Mega Pan	08422306377	192.17.195.188	The Paradise Shop	✓
IP	Green	LAD 35000	08422306405	48.564.28.179	The Paradise Shop	✓
Device ID	Green	RFB Barco Bridge	08422306410	70.883.197.538	The Paradise Shop	✓
Name	Green	DRB Warehouse	08422306416	204.198.48.162	The Paradise Shop	✓
Mac Address	Green	CRB Bruce Brothers 1081	08422306416	168.153.131.176	The Paradise Shop	✓
Device Host Address	Green	643 West's Warehouse	48469164006	94.81.18.30	Emeshore	✓
IP Address	Green	Neo Home 1	08422306424	70.88.182.216	Emeshore	✓
Device IP Address	Green	RL - Blue Ridge Server 3076	08422306471	94.842.217.514	The Paradise Shop	✓
Name	Green	SAL Warehouse	08422306476	168.153.220.71	The Paradise Shop	✓
Device Host	Green	DRB Warehouse	08422306476	94.134.207.548	The Paradise Shop	✓

Fix Issues and Manage Services Simply

View IP and MAC address of any camera on your cloud, test connection speed from that camera to the cloud, run a detailed health check, upgrade firmware, change network settings, reboot, restart services, disable or factory reset the camera all with one click. View detailed network settings, local storage utilization, CPU, memory and other operational statistics. Manage authorized users and alerts (such as when a camera disconnects from the network). Review cloud subscriptions, run and download detailed reports.



Dark Mode and Light Mode

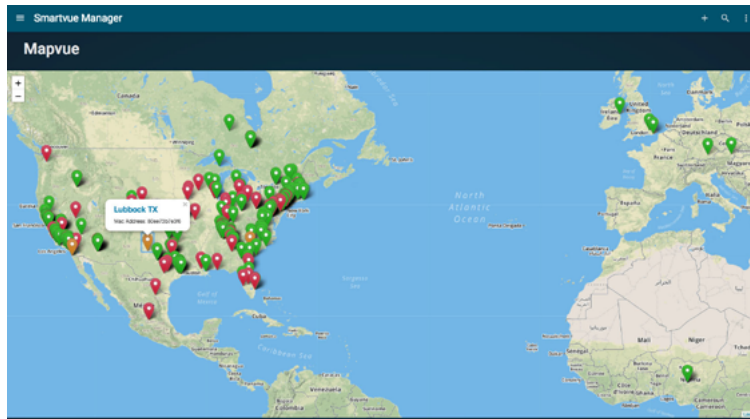
Select Dark or Light Mode interface for the all interfaces in Cloudevue. Light Mode enables a user-friendly “open” interface with easy to see controls in any lighting environment. In Dark Mode, the system adopts a darker color palette for views, menus, and controls. It’s easier on the eye in dark environments.



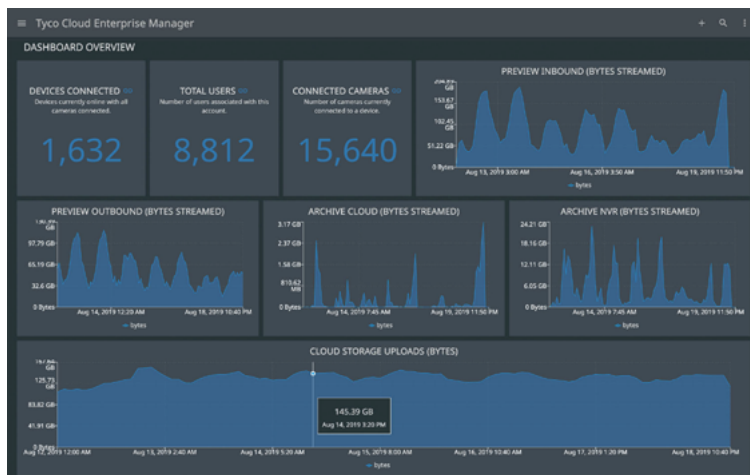
Cloud Service Management

Enterprise Management

Cloudvue offers a portal to manage all cloud cameras, gateways, IoT devices and their associated services, users and privileges in one interface. It delivers an enterprise support platform for technical representatives to service internal and external customers. Account supervisors can also quickly connect to problem devices using the integrated system status map.

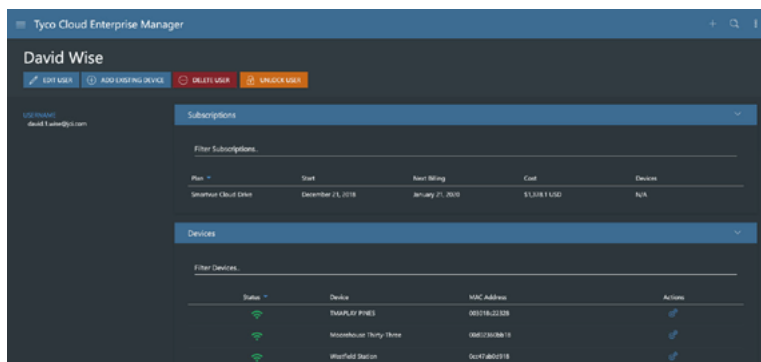


The management portal also delivers detailed visual dashboards of all devices and users connected to the cloud platform as well as current and historic network utilization. It also manages administration of OTA (over the air) firmware upgrades as well as SMS and email support alerts in case of field issues.



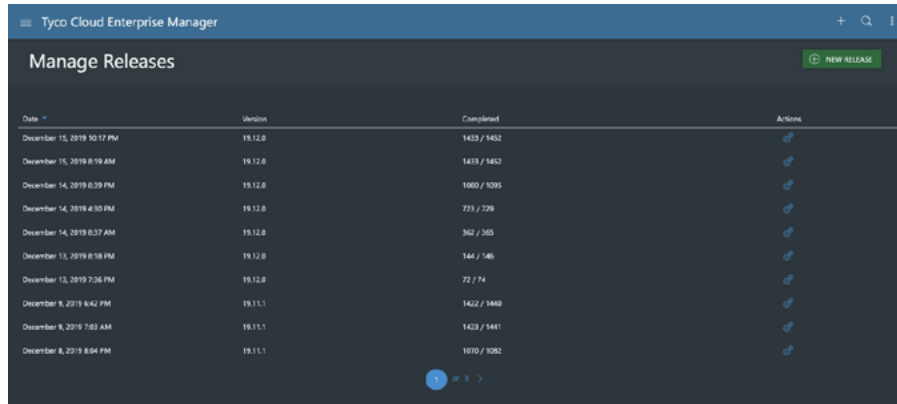
Subscription and Partner Management

View video surveillance service subscriptions for individual users and assign cameras, gateways and IoT devices to subscriptions.



Manage Software Releases

Create and manage software releases for cloud cameras, gateways, and IoT devices from one interface. Quickly and securely run over the air updates for thousands of in-field devices on demand.



The screenshot shows the 'Tyco Cloud Enterprise Manager' interface with a 'Manage Releases' section. A table lists software releases with the following data:

Date	Version	Completed	Actions
December 15, 2019 10:17 PM	19.12.0	1423 / 1432	[Action Icon]
December 15, 2019 8:19 AM	19.12.0	1419 / 1452	[Action Icon]
December 14, 2019 6:39 PM	19.12.0	1080 / 1095	[Action Icon]
December 14, 2019 4:30 PM	19.12.0	771 / 779	[Action Icon]
December 14, 2019 6:37 AM	19.12.0	362 / 365	[Action Icon]
December 13, 2019 8:18 PM	19.12.0	144 / 146	[Action Icon]
December 13, 2019 7:36 PM	19.12.0	72 / 74	[Action Icon]
December 9, 2019 6:42 PM	19.11.1	1422 / 1480	[Action Icon]
December 9, 2019 7:40 AM	19.11.1	1429 / 1461	[Action Icon]
December 8, 2019 8:04 PM	19.11.1	1010 / 1082	[Action Icon]

Security

Mission Critical Cybersecurity and Data Privacy

Cloudvue has leveraged its server management and video services expertise to create and implement industry-leading secure software development, operational management, and threat mitigation practices, helping it to deliver services that achieve higher levels of security, privacy, and compliance than most customers could achieve on their own.

Cloudvue surveillance services undergo regular verification by third-party audit firms. Cloudvue shares audit report findings and compliance packages with customers to help them fulfill their own compliance obligations. By verifying that its services meet compliance standards and demonstrating how compliance was achieved, Cloudvue makes it easier for customers to attain compliance for the infrastructure and applications they run.

Although the Cloudvue video surveillance platform is cloud agnostic, its standard services run on the Azure platform. Microsoft engages in industry-leading security efforts through its centers of excellence, including the Microsoft Digital Crimes Unit, Microsoft Cybercrime Center, and Microsoft Malware Protection Center. Cloudvue adheres to a rigorous set of security controls that govern operations and support and works with other entities within Microsoft such as the Microsoft Operational Security Assurance (OSA) group to identify risks and share information, supporting continuous improvement in operational controls. This increases the ability to prevent, detect, contain, and respond to security threats.

For data in transit, Cloudvue uses industry-standard transport protocols such as SSL and TLS between cameras, gateways, devices, and data centers, and within the data centers themselves. Data at rest, such as recorded video, is encrypted and can optionally be secured using 256bit SHA keys to validate anti-tampering. For data segregation and private clouds, Cloudvue offers private cloud services to provide unique physical cloud instances for each of its customers. It also offers multi-tenant services, meaning that multiple customers' deployments are stored on the same physical hardware. Cloudvue uses logical isolation to segregate each customer's data from that of others. This provides the scale and economic benefits of multi-tenant services while rigorously preventing customers from accessing other's data. For many customers, controlling the location of their data is an important element of data privacy, compliance and governance. Cloudvue customers can specify the geographic areas where their data is stored.

Cloudvue delivers a global 24x7 response service that works to mitigate the effects of attacks and malicious activity. The incident response team follows established procedures for incident management, communication, and recovery, and uses discoverable and predictable interfaces internally and externally to its customers.

Cloudvue also provides a global 24x7 access to our Product Security Incident Response Team (PSIRT) which includes a cyber security hotline for customers to contact Johnson Controls with issues or concerns around the clock and around the world.

Holistic Methodology

Johnson Controls' approach to cyber protection is aimed at providing peace of mind to our customers. Our holistic cyber mindset begins at initial design concept, continues through product development, and is supported through deployment, including a rapid incident response to meet the comprehensive and evolving cybersecurity environments. Our methods include the ability to provide cyber resilient systems with a range of capabilities to complement the diverse security needs of our customers.

Under the JCI Cyber Program, the internal conformance standards established are:

- Secure Communications Cryptographic Functions
- Third Party Penetration Testing Standard
- Open Source Code Security Standard
- Application Threat Modeling Standard
- Open Source Software Security Audit-Standard Operating Procedure
- Threat Intelligence Program Standard
- Product Security Patching and Updating Documentation Standard
- Vulnerability Management Standard

Secure Development

Baseline design requirements that address core cyber threat categories for elevated security. Dedicated in-house cybersecurity test labs focused on discovering and neutralizing concerns before they reach customers. Extended testing, including bug bounty programs and 3rd party penetration testing, provides verification and validation assurance. Solution designed features that enable easier compliance with corporate policies Certified and trained experts driving design decisions.

Deployment Services

Customer education to help drive more secure installation. Thought leadership to build a pragmatic approach to address cyber risk. Compliance assistance to help you comply with industry and organizational policies Security documentation for IT acceptance.

Rapid Response

Rapid incident response to quickly respond and advise on vulnerabilities. Preemption solutions driven by ongoing threat and trend monitoring. Incident response designed in conformance with ISO standards for accurate and consistent vulnerability handling and disclosure.

Disruption is Not an Option

Operational technologies often provide critical functions which, if disrupted, can impact operational efficiency and profits and result in disclosure of sensitive information. Cyberattackers whose aim is to cause disruption and loss have identified building and security systems as attractive targets. In today's environment, cybersecurity plays a very crucial role in protecting building and security systems. Unfortunately, many system providers do not address cybersecurity or fall short of providing sufficient support, leaving many buildings under protected.

A Higher-Level Commitment

Johnson Controls' approach to cyber protection is aimed at providing peace of mind to our customers. Our holistic cyber mindset begins at initial design concept, continues through product development, and is supported through deployment, including a rapid incident response to meet the comprehensive and evolving cybersecurity environments. Our methods include the ability to provide cyber resilient systems with a range of capabilities to complement the diverse security needs of our customers. We have invested in establishing a centralized dedicated Global Product Security team that is focused on managing our cyber practices with governance to enforce compliance. At Johnson Controls, we are disciplined in executing these as we understand what is at risk if we don't.

Expert Driven Designs

Having engineering teams trained in cybersecurity has given Johnson Controls an advantage in developing products that consider cybersecurity within its core design. Our certified cybersecurity experts (CISSP, CSSLP, CEH, CCSP etc.) work to validate designs using the latest recognized industry standards and practices. Expert driven cybersecurity designs provide the forethought required to reduce risk.

Lifecycle Management

Our cyber protection approach begins with the design and doesn't stop once a product is developed – a product secure today may not be secure tomorrow. Through the rapid incident response service, our dedicated cybersecurity team quickly assesses new threats and vulnerabilities and advises customers on how they may reduce their cybersecurity exposure.

Shared Responsibility

Since protecting against cyber threats is a shared responsibility, we engage in market facing programs to provide customer engagement, education, and thought leadership to help our customers achieve success in their mission of a more secure system.

Select Security Features

In addition to industry leading standards for cyber and data protection, Cloudvue also implements the following security features to support customer security:

- Encryption at rest and during transmission
- AES-192-CBC encryption for video security
- TLS 1.2+ encryption for network transport security
- No Plugins or Flash
- Strictly enforce strong user passwords
- Rotating strong device passwords unique per device
- Signed firmware from trusted sources for OTA updates
- Disable all ports/processes outside of Cloudvue services
- HTTPS/SSH only access to services
- Monitor all processes to detect intrusion/malware
- Two-factor setup authentication
- Latest and strongest cryptography technologies
- Internal security audits
- External third-party security audits
- External third-party pen testing
- SSL pinning
- Trusted Certificates
- Known Reciprocation
- No default usernames or Passwords allowed

Hosting Infrastructure

The Cloudvue software as a service platform runs on Microsoft's Azure global data center infrastructure. All aspects of data center security infrastructure are ISO27001 and SOC2 compliant operating under the shared responsibility model with Microsoft. Learn more here: <https://www.microsoft.com/en-us/trustcenter/Compliance/ISO-IEC-27001>.

Common Security Questions

Security policies and certificates		
Is a security policy available for the use of devices by employees?	Yes	Johnson Controls corporate policy
Are regular security awareness training sessions on data and information security carried out with employees? How regularly?	Yes	Minimum once per quarter
Is a CSO (Chief Security Officer) available who can be contacted regarding securityrelevant topics?	Yes	Jason Christman (Johnson Controls Vice President, Global Products Cyber Security)
Physical data center and Service Delivery Locations		
Is video surveillance available along the entire perimeter?	Yes	
Is a building management system available?	Yes	
Is a burglar alarm system installed?	Yes	
Is the site monitored 24/7 by an on-site security service?	Yes	
Is there a staffed reception desk at which all visitors have to register?	Yes	
Is access to the data center and SDL logged automatically?	Yes	Our services and applications are hosted on Microsoft Azure. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Is two-factor authentication available for access to the data center and SDL? What factors?	Yes	Phone

Are the rooms in the data center and SDL divided into security zones? (e. g. general spaces, customer reception area, server room)	Yes	Our services and applications are hosted on Microsoft Azure. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Are access permissions for individual security zones granted based on the principle of least privilege?	Yes	Our services and applications are hosted on Microsoft Azure. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Are the data centers clustered? If so, how exactly? (e.g. continental, regional, metro or campus cluster)	Yes	Azure regions
Is clustering used to avoid data loss? (e.g. automatic replication)	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Is the service provided internationally? Which data centers and SDLs are used for this purpose?	Yes	Azure has data centers in over 140 countries
Are the data centers and Service Delivery Locations used the property of the service provider?	No	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Is the building secured against external forces in the event of force majeure? (e.g. tree falls on building, truck drives into building) – ISO 27001	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Does the data center have windows?	No	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Does the data center and SDL have a fire safety plan? (e. g. early detection systems, fire alarm system, smoke alarms, extinguishing equipment, regular fire drills)	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Are server racks/rooms protected from physical access? (e.g. by a combination lock)	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Can it be guaranteed that data processing is permanently carried out at the same location?	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Would customer be informed of changes to the data center infrastructure? How far in advance?	Yes	This can be discussed in the agreement, but in general it's between 30 - 60 days in advance
Is it possible to carry out pre-announced audits in the data center or service delivery Locations?	Yes	We use Azure data centers. Please refer to https://azure.microsoft.com/enus/overview/trusted-cloud/
Is it possible to carry out pre-announced penetration tests of the platform?	Yes	
Processes		
Is a change management process established and documented?	Yes	
Are change requests documented, approved by authorized persons and backed up? Is their scope of business impact evaluated?	Yes	
Are changes tested in advance in order to allow potential effects to be identified?	Yes	
Is a test environment available for change management and is it used for pretesting?	Yes	We have multiple environments for development, QA, Staging, Pre-Prod and Production.
Are changes to the existing infrastructure (updates) and to the application (new version) communicated to customer? How far in advance?	Yes	This can be discussed in the agreement, but in general it's between 30 - 60 days in advance
Will the discontinuation of the service be communicated to customer?	Yes	This can be discussed in the agreement, but in general it's between 90 - 180 days in advance
Is a patch management process established and documented?	Yes	
Are all operating systems, applications and business-critical servers patched within 30 days of a release?	Yes	
Are software updates and patches pretested in order to enable the early identification of potential effects?	Yes	
Is a test environment available for pretesting the patch management process?	Yes	

Is a security incident management process established and documented?	Yes	Please refer to Johnson Controls Cyber Security document (attached)
Are all system-relevant incidents that affect services and systems used for customer directly forwarded to customer?	Yes	
Describe your security response plan.	Yes	Please refer to Johnson Controls Cyber Security document (attached)
Can a report on security incidents be provided on a regular basis?	Yes	This can be discussed in the agreement
Is there 24/7 monitoring of the availability of infrastructure for services and resources?	Yes	
Are all SLA-relevant events recorded and retained for at least 90 days? Which parameters? (e.g. network capacity, latencies, etc.)	Yes	
Is the monitoring evaluated on a monthly basis in the scope of reports? (e.g. SLA report & capacity report)	Yes	
Are the activities of the cloud service provider's administrators recorded and monitored?	Yes	
Application		
Describe the solution architecture, multiple tiers (e.g. database, app, web), network, and technical security controls. Please provide a diagram.	Yes	Please see attached architecture document
Does your network have any single points of failure? If so describe them.	No	
Is a user management process established?	Yes	
Are account passwords able to conform to our password policy?	Yes	We enforce strong complex passwords with a minimum of 8 characters containing two upper-case, two lower case, one special character, and one number. We can extend our password policy to conform to customer's password policy.
Are generalized user accounts used for access to the systems?	Yes	
Will customer be granted control over the encryption keys?	No	
Can customer define the period for which data is retained?	Yes	
Is all access automatically logged within the application?	Yes	It is not automatically logged, however it can be easily setup.
Infrastructure		
Is a web application firewall used to protect the web infrastructure?	Yes	https://docs.microsoft.com/en-us/azure/applicationgateway/waf-overview
Are measures taken to protect against DDOS attacks? What measures?	Yes	We have rate limiting and IP whitelist/blacklist
Is network segmentation used between the management network and the live network?	Yes	
Is it only possible to establish a secured connection to a remote access session? (e.g. SSH, TLS, IPSEC, VPN)	Yes	
Is encrypted communication between individual data centers guaranteed? (e.g. in the event that multiple data centers are used)	Yes	Our services and applications are hosted on Microsoft Azure. Please refer to https://docs.microsoft.com/enus/azure/security/security-network-overview
Is data only exchanged in encrypted form with external service providers that are necessary for the operation of the data center?	Yes	
Do firewall rules have to be activated for the use of the application? Which firewall rules?	No	Our systems communicate via HTTPS and TLS 1.2 over standard port 443.
Is there the option to establish a permanent, secure and encrypted connection between the designated data center and customer? (e.g. VPN via IPsec or MPLS)	Yes	Our services and applications are hosted on Microsoft Azure. Please refer to https://docs.microsoft.com/enus/azure/security/security-network-overview
Is there a system in place to automatically recognize interrupted connections?	Yes	
Can a fixed bandwidth be guaranteed for customer?	Yes	This will require a dedicated cloud instance for customer.

Do database or web servers run on different, dedicated systems or virtual machines?	No	
Is it possible to operate all used systems in a dedicated way for customer? What are the exceptions?	Yes	This will require a dedicated installation instance for customer
Are all operating systems, applications and servers hardened? Or will this happen?	Yes	
Is the processed data stored in a partition that is independent of the operating system?	Yes	
Are the servers secured by a host based IPS?	No	
Do the servers support SSL Perfect Forward Secrecy?	Yes	
Are all virtual systems used implemented using certified software? (e.g. VM-Ware, MS Hyper-V)	Yes	
Are support contracts in place with responsible service providers for all software and hardware components used?	Yes	
Are the services provided protected against failure? How?	Yes	All services and applications in the cloud are protected against failure by leveraging Azure technologies. The gateway appliance server on customer site can be protected against failure using RAIDs and UPS battery.
Are backups carried out regularly? What is stored in the scope of a backup and how often?	Yes	All services and applications in the cloud have automatic backup and replication using Azure technologies. The gateway appliance server on customer site can backup data to our cloud.
Are backups retained? For how long (months)?	Yes	Depends on the use case
Can customer have an influence on the time and scope of the data backup? To what extent?	Yes	You can select and configure data retention and what data to backup to the cloud.
Is anti-virus software with current virus patterns in use within the environment infrastructure?	Yes	
Is incoming, processed and outgoing data checked for viruses?	Yes	
Business continuity management		
Are emergency drills for the failure of critical components (e. g. Internet connection, power supply, network) carried out regularly?	Yes	We use Azure data centers. Please refer to https://docs.microsoft.com/enus/azure/security/azure-physical-security
Contract design		
Are there regular audits and certifications to check and certify data protection with the contractor and the obligations towards the client?	Yes	
Is customer obliged to accept fixed service quotas?	No	
Will customer have access to data and services in the event customer fails to pay?	No	Customer will have access to data that is stored locally on gateways, but may not have access to video stored on the Cloud.
May you please provided your data retention policy?	Yes	Events data are stored for up to 180 days (can be longer depending on customer needs). Video data are stored locally and/or in the cloud based on available disk space and customer needs.
Is it ensured that the data will actually be deleted upon customer's request?	Yes	
Is a source code deposit available?	Yes	
Is the software used linked to a specific platform? Which one?	No	
Service Level Agreement (SLA)		
Can it be contractually ensured that customer will be proactively informed of interruptions or failures that affect the infrastructure used by customer?	Yes	
Are specific maintenance slots and patch days defined for the designated infrastructure?	Yes	customer can schedule updates & patch fixes in coordination with Cloudvue

Data protection		
Has a company data protection officer been appointed in writing? (Please specify the contact details and list this person's fields of activity)	Yes	Johnson Controls has Chief Data Privacy Officer
Are employees obligated to comply with data and business confidentiality regulations?	Yes	
Are there any policies on data protection law and work instructions regarding the handling of personal data?	Yes	
Is it possible to restrict the location for data storage to US or other countries if required due to legal or governmental requirements of customer?	Yes	
Is a sufficient level of data protection provided even outside of the US?	Yes	
Cloud and eCommerce Services		
Are services expose to the Internet? If so list them. (Examples: HTTP(S), FTP, SSH, etc.)	Yes	HTTPS & SSH
Is Two-Factor Authentication offered? If so, what types?	Yes	Two-factor authentication via SMS and email will be released later this year
Is the service PCI compliant? If yes provide your PCI AOC. If your cart is third party, please provide the vendor's AOC.	Yes	We use Stripe for ecommerce (https://stripe.com/guides/pci-compliance)
Is the solution compliant with PCI standards for new deployments?	Yes	We use Stripe for ecommerce (https://stripe.com/guides/pci-compliance)
Do you use a separate gateway/payment processor?	Yes	We use Stripe for ecommerce (https://stripe.com/guides/pci-compliance)
Is the e-com platform hosted within a single tenant environment?	Yes	We support both single-tenant and multitenant deployments
Do you store any customer personal information? If so, please provide details on how this information is protected.	Yes	https://www.johnsoncontrols.com/legal/privacy
How is customer card information secure for data in use, transit, and rest?	Yes	We use Stripe for ecommerce (https://stripe.com/guides/pci-compliance)
Is Denial of Service protection is offered?	Yes	
Provide details how sessions are managed, specifically as they relate to transaction and/or shopping cart operation.	Yes	Sessions are managed through short-lived access token. The integration with Stripe is done only on our cloud backend using Stripe API.

GDPR Privacy Shield Compliance

Cloudvue solutions are certified as Johnson Controls, Sensormatic Electronics LLC under the EU-U.S Privacy Shield and Swiss-U.S. Privacy Shield Frameworks. The Global Public Privacy Notice applicable to Personal Data other than Human Resources data is available here: <https://www.johnsoncontrols.com/legal/privacy>.



For additional questions regarding the covered privacy data or the privacy policy, please contact Sachin Kothari, Chief Privacy Officer Johnson Controls Inc.

Open Source

Certain Cloudvue services include third-party code licensed for use and redistribution under open-source licenses. Below is a list of disclosures and disclaimers in connection with Tyco Cloud's incorporation of certain open-source licensed software into its services. Notwithstanding any of the terms and conditions of your license agreement with Cloudvue Corporation, the terms of certain open-source

licenses may be applicable to your use of Cloudvue software, as set forth below. This list of open-source code was compiled with reference to third-party software incorporated into the services as of the date the list was generated. This list may be updated from time to time and may not be complete, visit tycocloudsolutions.com for updated information.

Software/Library	Manufacturer/ Author(s)	Version	Purpose	License
Alamofire	https://github.com/Alamofire/Alamofire	4.2.0	General networking, mainly for making http requests in Swift	MIT
alt	Josh Perez, Jonathan Lehman	0.18.6	A flux implementation	MIT
Angular	Google	1.5.0	AngularJS - HTML enhanced for web apps!	MIT
Angular-animate	Google	1.5.8	AngularJS module for animations	MIT
Angular-cookies	Google	1.5.8	AngularJS module for cookies	MIT
Angular-messages	Google	1.5.8	AngularJS module that provides enhanced support for displaying messages within templates	MIT
Angular-resource	Google	1.5.8	AngularJS module for interacting with RESTful server-side data sources	MIT
Angular-sanitize	Google	1.5.8	AngularJS module for sanitizing HTML	MIT
Angular-touch	Google	1.5.8	AngularJS module for touch events and helpers for touch-enabled devices	MIT
angular-translate	Pascal Precht	1.5.8	A translation module for AngularJS	MIT
Angular-ui-router	Google	1.5.0	State-based routing for AngularJS	MIT
angular-ui-sortable	AngularUI	0.13.4	This directive allows you to jQueryUI Sortable.	MIT
angularjs-datepicker	Filippo Oretti	2.1.23	A datepicker directive for angularjs.	MIT
archiver	Chris Talkington	0.9.1	Streams archive generation	MIT
async	Caolan McMahon	2.1.5	Asynchronous utilities	MIT
autoprefixer	Andrey Sitnik	6.4.2	Parse CSS and add vendor prefixes to CSS rules using values from the Can I Use website	MIT
Awesome typescript loader	Stanislav Panferov	3.0.0	Awesome TS loader for webpack	MIT
azure	Microsoft	1.2.0	Azure SDK for Node.js	MIT
Azure-keyvault	Microsoft	1.2.0	Microsoft Azure Client Library for node	MIT
azure-storage	Microsoft	1.4.0	Connects to Azure services and blobs	Apache 2.0
Azure-storage fornode	Microsoft	2.1.0	Microsoft Azure Storage SDK for Node.js	MIT
babel-preset-es2015	Babel	6.3.13	Babel preset for all es2015 plugins.	MIT
babel-preset-stage-2	Babel	6.24.1	Babel preset for stage 2 plugins	MIT
babel-register	Babel	6.24.1	babel require hook	MIT
babelify	Babel	7.3.0	Babel browserify transform	MIT
bcrypt	Solar Designer		Bcrypt password hash C library	MIT
bluebird	Petka Antonov	3.5.0	Full featured promise library for Javascript	MIT
body-parser	Douglas Wilson, Jonathan Ong	1.17.1	Node.JS body parsing middleware	MIT
Bowser	Dustin Diaz	1.6.0	Browser detector	MIT
browserify	Browserify	14.3.0	browser-side require() the node way	MIT
bufferutil	Einar Otta Stangvik	3.0.0	Websocket buffer utils	MIT
bunyan	Trent Mick	1.4.0	JSON logging library	MIT
bunyan-redis-stream	Harri Siirak	1.0.1	Transports bunyan data to redis	MIT
busboy	Brian White	0.2.14	Parses HTML form data	MIT
case sensitive paths webpack plugin	Michael Pratt	1.1.4	Enforces module path case sensitivity in Webpack	MIT

chalk	https://github.com/chalk/chalk#readme	1.1.3	Terminal string styling done right. Much color.	MIT
classnames	Jed Watson	2.2.5	A simple utility for conditionally joining classNames together	MIT
cluster	TJ Holowaychuk	0.7.7	Cluster server for Node	MIT
com.crashlytics.sdk.android:crashlytics	https://github.com/crashlytics/crashlyticservices	2.6.5	Collect analytic data	MIT
com.github.jjones:slideDateTimePicker	https://github.com/jjones/SlideDateTimePicker	1.0.2	Date picker for android	Apache-2.0
com.google.code.gson:gson	Google	2.6.2	Java Object to JSON converter	Apache-2.0
com.google.firebase:firebase-messaging	Google	10.2	Handle push notifications on the device side	Google
com.kaopiz:kprogresshud	https://github.com/Kaopiz/KProgressHUD	1.0.5	A neat and customizable heads up display view	Apache-2.0
com.squareup.retrofit2:converter-gson	https://github.com/square/retrofit/tree/master/retrofit-converter-gson	2.0.2	JSON serialization with retrofit	Apache-2.0
com.squareup.retrofit2:retrofit	https://github.com/square/retrofit	2.0.2	General networking, mainly for making http requests in Java	Apache-2.0
connect history API fallback	Ben Ripkens	1.3.0	Provides a fallback for non-existing directories so that the HTML 5 history API can be used.	MIT
connect-redis	TJ Holowaychuk	2.0.0	Redis session store for Connect	MIT
Convict	Mozilla	0.4.2	Config management	Apache-2.0
cookie-parser	TJ Holowaychuk	1.4.3	Parses cookies for node	MIT
Crashlytics	Fabric	3.8.3	Collect analytic data	Google
crypto	Irakli Gozalishvili	0.0.3	Cryptographic functions	BSD
css loader	Tobias Koppers @sokra	0.26.1	css loader module for webpack	MIT
D3	https://github.com/mbostock-bower/d3-bower	4.7.3	A JavaScript visualization library for HTML and SVG	BSD-3-Clause
d3-time-format	Mike Bostock	2.0.5	A JavaScript time formatter and parser inspired by strftime and strptime.	BSD-3-Clause
d3-tip	Justin Palmer	0.7.1	Tooltips for d3 svg visualizations	MIT
db-migrate	Tobias Gurtick	0.10.0	Database migration framework for node.js	MIT
del	Sindre Sorhus	2.2.0	Delete files and folders	MIT
detect port	https://github.com/node-modules/detectport	1.1.0	detect available port in webpack	MIT
dotenv	scottmotte	4.0.0	Loads environment variables from .env file	BSD-3-Clause
Dropbear	Matt Johnston	0.44	SSH server and client	MIT
EaselJS	https://github.com/CreateJS/EaselJS	0.8.2	Easel Javascript library	MIT
eslint	ESLint	2.2.0	An AST-based pattern checker for JavaScript.	MIT
eslint-config-angular	Dustin Specker	0.5.0	ESLint shareable config for Angular plugin	MIT
eslint-plugin-angular	Emmanuel Demey	3.0.0	ESLint rules for AngularJS projects	MIT
Express	TJ Holowaychuk	4.15.2	Fast, unopinionated, minimalist web framework	MIT
express-session	TJ Holowaychuk	1.6.5	Creates a session for an express app	MIT
EZAudio	https://github.com/syedhali/EZAudio	1.1.4	Real time graphics visualization of audio data	MIT
Fabric	https://fabric.io/	1.6.11	Collect analytic data	Google
fbjs	Facebook	0.8.9	A collection of utility libraries used by other Facebook JS projects	MIT

ffmpeg	https://ffmpeg.org/about.html	3.2.4	Multimedia framework library and toolkit	LGPL2.1
file-encryptor	Brandon Cannaday	0.1.1	Encrypts files with node.js	MIT
File-loader	Tobias Koppers @sokra	0.10.0	file loader module for webpack	MIT
filesize	Jason Mulligan	3.5.4	JavaScript library to generate a human readable String describing the file size	BSD-3-Clause
Firebase/Core	Google	newest	Handle push notifications on the device side	Google
Firebase/Messaging	Google	newest	Handle push notifications on the device side	Google
fluent-ffmpeg	Stefan Schaermeli	2.0.1	FFmpeg abstraction layer	MIT
formidable	Felix Geisendorfer	1.0.17	Parsing form data and file uploads	MIT
Fs-extra	JP Richardson	2.0.0	fs-extra contains methods that aren't included in the vanilla Node.js fs package. Such as mkdir -p, cp -r, and rm -rf.	MIT
geoip-lite	Philip Tellis	1.2.0	A light weight native JavaScript implementation of GeolP API from MaxMind	Apache-2.0
getmac	Benjamin Lupton	1.0.6	Gets the mac address of the current machine	MIT
Gifu	https://github.com/kaishin/Gifu.git	newest	Display gifs in UIKit	MIT
globby	Sindre Sorhus	6.1.0	Extends `glob` with support for multiple patterns and exposes a Promise API	MIT
Googlelibphonenumber	Rui Marinho	2.0.11	Google's libphonenumber package for node.js	MIT
grafana	Grafana Labs	4.1.1	Metric and Data graphs for application data	Apache-2.0
guirc	Danier Beer	1.0	QR code library	MIT
gulp	Fractal	3.9.1	The streaming build system	MIT
gulp-angulartemplatecache	Mickel Andersson	1.9.1	Concatenates and registers AngularJS templates in the \$templateCache.	MIT
gulp-autoprefixer	Sindre Sorhus	3.1.1	Prefix CSS	MIT
gulp-babel	Babel	6.1.2	Use next generation JavaScript, today	MIT
gulp-concat	Contra	2.6.1	Concatenates files	MIT
gulp-cssnano	Ben Briggs	2.1.2	Minify CSS with cssnano.	MIT
gulp-eslint	Adametry	2.1.0	A gulp plugin for processing files with ESLint	MIT
gulp-htmlmin	Jon Schlinkert	1.3.0	gulp plugin to minify HTML.	MIT
gulp-load-plugins	Jack Franklin	1.5.0	Automatically load any gulp plugins in your package.json	MIT
gulp-ng-annotate	Kagami Hiragi	2.0.0	Add angularjs dependency injection annotations with ng-annotate	CC0-1.0
gulp-ng-constant	Arturo Guzman	1.1.0	Gulp plugin for dynamic generation of angular constant modules.	MIT
gulp-ngdocs	nikhilmodak	0.2.13	gulp plugin for angularjs documentation	MIT
gulp-plumber	Vsevolod Strukchinsky	1.1.0	Prevent pipe breaking caused by errors from gulp plugins	MIT
gulp-preprocess	Jason Sandmeyer	2.0.0	Gulp plugin to preprocess HTML, JavaScript, and other files based on custom context or environment configuration	MIT
gulp-rename	Hector Guillermo Parra Alvarez	1.2.2	Rename files	MIT

gulp-rev	Sindre Sorhus	7.1.2	Static asset revisioning by appending content hash to filenames: unicorn.css => unicorn-d41d8cd98f.css	MIT
gulp-rev-replace	James K Nelson	0.4.3	Rewrite occurrences of filenames which have been renamed by gulp-rev	MIT
gulp-sass	David Manning	2.3.2	Gulp plugin for sass	MIT
gulp-sass-lint	Sass Tools	1.3.2	Gulp plugin for Sass Lint	MIT
gulp-sequence	Teambition	0.4.6	Run a series of gulp tasks in order.	MIT
gulp-sourcemaps	Florian Reiterer	1.12.0	Source map support for Gulp.js	ISC
gulp-uglify	Terin Stock	1.5.4	Minify files with UglifyJS.	MIT
gulp-util	Fractal	3.0.8	Utility functions for gulp plugins	MIT
gulp-webserver	Johannes Schickling	0.9.1	Gulp plugin to run a local webserver with LiveReload	MIT
Gzip-size	Sindre Sorhus	3.0.0	Get the gzipped size of a string or buffer	MIT
Html-webpackplugin	Charles Blaxland	2.28.0	Simplifies creation of HTML files to serve your webpack bundles	MIT
http proxy middleware	Steven Chim	0.17.3	The one-liner node.js proxy middleware for sconnect, express and browser-sync	MIT
Immutable	Facebook	3.8.1	Immutable persistent data collections for Javascript which increase efficiency and simplicity	BSD
influxdb	Influx Data	1.3.6	Metrics Database	MIT
Interact	Taye Adeyemi	1.3.0	JavaScript drag and drop, resizing and multi-touch gestures	MIT
io.socket:socket.ioclient	https://github.com/socketio/socket.ioclient-java	0.8.2	Socket.io library for Java	MIT
loredis	Zihua Li	3.0.0	Redis client for Node and io.js	MIT
Jade	Pug	1.11.0	HTML Templating	MIT
Jcrop	Tapmodo	0.9.12	Image Cropping Plugin for jQuery	MIT
jest	https://github.com/facebook/jest#readme	18.1.0	Painless JavaScript Testing.	BSD-3-Clause
Jquery	jQuery Foundation	3.1.1	JavaScript library for DOM operations	MIT
jquery-ui-dist	jQuery Foundation and other contributors	1.12.1	A curated set of user interface interactions, effects, widgets, and themes built on top of the jQuery JavaScript Library.	MIT
jscss	jscss-dev	2.3.5	JavaScript Code Style	MIT
json-2-csv	Mirco Zeiss	1.2.0	JSON parser for generating CARE API	MIT
Kapacitor	Influx Data	1.3.2	Triggers actions based off rules that apply to data stored in InfluxDB.	MIT
KeychainSwift	https://github.com/marketplacer/keychainswift	7.0.0	Access and store data into the Apple Keychain	MIT
KineticJS	Eric Rowell	5.0.1	Browser 2D canvas manipulation	MIT
Kue	TJ Holowaychuk	0.11.5	Job Queue for Redis	MIT
Leaflet	https://github.com/Leaflet/Leaflet#readme	1.2.0	JavaScript library for mobile-friendly interactive maps	BSD-2-Clause
libboost	Boost.org	various	Boost libraries for C/C++	Boost-1.0
libcurl	https://curl.haxx.se/libcurl/	7.53.1	Multiprotocol file transfer library	MIT
libjpeg	https://ijg.org	6b	C library for reading and writing JPEG image files	IJG
libwebsockets	https://github.com/warmcat/libwebsockets	2.2.0	Library for lightweight websocket clients and servers	LGPLv2.1
Lint-staged	Andrey Okonetchnikov	3.4.0	Lint files staged by git	MIT

Lodash	https://github.com/lodash/lodash	4.17.4	Lodash makes JavaScript easier by taking the hassle out of working with arrays, numbers, objects, strings, etc	MIT
Loopback	https://github.com/strongloop/loopback	3.4.0	Node.JS RESTful API	MIT
loredis	Matt Ranney	2.7.1	Redis client library	MIT
malihu-custom-scrollbar-plugin	malihu	3.1.3	Highly customizable custom scrollbar jQuery plugin, featuring vertical/horizontal scrollbars, scrolling momentum, mousewheel, keyboard and touch support user defined callbacks etc.	MIT
MariaDB	MariaDB Foundation	10.1.22	Open Source database	GLPv2
Material-ui	Material-UI Team	0.18.3	React Components that Implement Google's Material Design.	MIT
mkdirp	James Halliday	0.5.1	Generates folders for vidos	MIT
mocha	MochaJS	3.4.2	simple, flexible, fun test framework	MIT
Moment	Iskren Ivoc Chernev	2.17.1	A lightweight JavaScript date library	MIT
moment-timezone	Tim Wood	0.3.0	Timezone support for moment	MIT
MongoDB	Mongo	3.4	NoSQL storage and queue	AGPL
msgpack	https://github.com/msgpack/msgpack-c	2.1.1	Binary serialization library	Boost-1.0
mysql	Andrey Sidorov	2.13.0	Mysql driver for node	MIT
net.protyposis.android.media:mediaplayer	https://github.com/protyposis/MediaPlayer-Extended	4.2.2	Robust video player for android	Apache-2.0
net.protyposis.android.media:mediaplayer-dash	https://github.com/protyposis/MediaPlayer-Extended	4.2.2	Robust video player for android	Apache-2.0
ng-file-upload	Danial Farid	3.0.7	angular-file-upload	MIT
ng-idle	Mike Grabski	1.1.1	Directives and services for responding to idle users in AngularJS	MIT
ng-redux	William Buchwalter	3.4.0-beta.1	Redux bindings for Angular.js	MIT
nginx	Nginx	1.11.3	Web Server	BSD-2-Clause
nib	TJ Holowaychuk	1.0.3	UI design for our admin tools	MIT
node	Joyent	0.12.7	Programming language + runtime	MIT
node-sass	Andrew Nesbitt	4.5.0	Wrapper around libsass	MIT
node-upnp-ssdp	Barry Williams	0.1.1	SSDP detection client for node	MIT
Nodemailer	Andris Reinman	3.1.7	Email library for Node	EUPL-1.1
nsp	^lift security	2.8.0	The Node Security (nodesecurity.io) command line interface	Apache-2.0
nsp	The Node Security Platform	2.8.0	The Node Security (nodesecurity.io) command line interface	Apache-2.0
numeral	Adam Draper	2.0.4	Format and manipulate numbers.	MIT
object-assign	Sindre Sorhus	4.1.1	ES2015 `Object.assign()` ponyfill	MIT
OpenCV	OpenCV.org	3.2	Open Source computer vision library	BSD-3-Clause
Openssl	The OpenSSL Project	1.1.0	General-purpose cryptography library	Apache-2.0
Path-exists	Sindre Sorhus	3.0.0	Check if a path exists	MIT
Pkgcloud	Charlie Robbins	1.4.0	An infrastructure-as-a-service agnostic cloud library for node.js	MIT
PKHUD	https://github.com/pkluz/PKHUD	4.1.0	A neat and customizable heads up display view	MIT
pl.droidsonroids.gif:android-gifdrawble	https://github.com/koral--/android-gifdrawble	1.2.3	Display gifs in android	MIT
Postcss-loader	Andrey Sitnik	1.2.2	PostCSS loader for webpack	MIT

Postcss-smartimport	Sebastian Werner	0.6.7	PostCSS plugin to import CSS/SugarSS files	MIT
Pre-commit	Arnout Kazemier	1.2.2	Automatically install pre-commit hooks for your npm modules.	MIT
precss	Jonathan Neal	1.4.0	Use Sass-like markup in your CSS	CC0-1.0
preprocessify	Bibliolabs LLC	1.0.1	Browserify preprocess transform	ISC
promise	ForbesLindesay	7.1.1	Bare bones Promises/A+ implementation	MIT
ReachabilitySwift	https://github.com/ashleymills/Reachability.swift	3	Check the network status of the iOS device	MIT
React	Facebook	15.4.2	JavaScript library for building user interfaces.	BSD-3-Clause
React DOM	Facebook	15.4.2	React package for working with the DOM."	BSD-3-Clause
React Redux	Dan Abramov	5.0.2	Official React bindings for Redux	MIT
React Router	Ryan Florence, Michael Jackson	3.0.2	A complete routing library for React	MIT
React-dev-utils	https://github.com/facebookincubator/create-react-app	0.4.2	Webpack utilities used by Create React App	BSD-3-Clause
React-tap-eventplugin	sOmeone	2.0.1	Facebook's TapEventPlugin	Apache-2.0
recharts	recharts group	0.20.5	React component chart library	MIT
Recursive-readdir	Jamison Dance	2.1.0	Get an array of all files in a directory and subdirectories.	MIT
redlock	Mike Marcacci	2.1.0	A node.js redlock implementation for distributed redis locks	MIT
Redux	Dan Abramov, Andrew Clark	3.6.0	Predictable state container for JavaScript apps	MIT
Redux Logger	Eugene Rodionov	2.10.0	Logger for Redux	MIT
Redux Thunk	Dan Abramov	2.2.0	Thunk middleware for Redux.	MIT
Redux-logger	Eugene Rodionov	2.8.2	Logger for Redux	MIT
redux-thunk	Dan Abramov	2.2.0	Thunk middleware for Redux.	MIT
request	Mikeal Rogers	2.81.1	node.js HTTP client	Apache 2.0
rimraf	Isaac Z. Schlueter	2.6.1	A deep deletion module for node (like `rm - rf`)	ISC
ryanmullins-angularhammer	Ryan S Mullins	2.1.10	Hammer.js support for Angular.js applications	MIT
sass-lint	Sass Tools	1.5.0	All Node Sass linter!	MIT
Sass-loader	J. Tangelder	4.1.1	Sass loader for webpack	MIT
sequelize	https://github.com/sequelize/sequelize	4.0.0-2	ORM for Node integration with Microsoft SQL server	MIT
Serialport	Chris Williams	4.0.7	Access to hardware serialport	MIT
socket.io	Guillermo Rauch	1.7.3	Websocket integration for events	MIT
socket.io-client	https://github.com/socketio/socket.io-client	1.7.2	Client framework for socket.io	MIT
Socket.IO-Client-Swift	https://github.com/socketio/socket.io-client-swift	8.2.0	Socket.io library for Swift	MIT
sqlite3	Konstantin Käfer	3.1.8	Sqlite Node manager	BSD
stream-buffer	https://github.com/samcdav	1.0.0	Stream Buffer	Unlicense
Strip-ansi	Sindre Sorhus	3.0.1	Strip ANSI escape codes	MIT
Stripe	Stripe	newest	Integrate with Stripe for billing	MIT
Style-loader	Tobias Koppers @sokra	0.13.1	style loader module for webpack	MIT
stylus	TJ Holowaychuk	0.47.2	CSS superset for UI	MIT
Superagent	TJ Holowaychuk	3.5.0	HTTP Request Library	MIT
SwiftJSON	https://github.com/SwiftyJSON/SwiftyJSON	3.1.3	Using JSON in Swift	MIT
td-agent	Treasure Data	2.3.4	Pushing logs to our centralized log server (Log Shipping)	Apache-2.0
tedious	Mike D Pilsbury	1.15.0	Database connection to SQL Server	MIT

Telegraf	Influx Data	1.4.6	Pushes metrics and stats to InfluxDB	MIT
temp	Bruce Williams	0.7.0	Creates temporary files and directories for temporary video	MIT
through2	Rod Vagg	2.0.3	A tiny wrapper around Node streams2 Transform to avoid explicit subclassing noise	MIT
toastr	http://www.toastrjs.com	2.1.2	ToastrJS is a JavaScript library for Gnome / Growl type non-blocking notifications	MIT
tough-cookie	https://www.npmjs.com/package/toughcookie	2.3.3	This is an indirect dependency from request node module	BSD-3-Clause
tslint	palantir	4.4.2	An extensible static analysis linter for the TypeScript language	Apache-2.0
tslint eslint rules	Vitor Buzinaro	3.4.0	Improve your TSLint with the missing ESLint Rules	MIT
Tslint-loader	William Buchwalter	3.3.0	tslint loader for webpack	MIT
Tslint-react	palantir	2.4.0	Lint rules related to React & JSX for TSLint	Apache-2.0
Twilio-node	Kevin Whinnery	2.11.1	Twilio library for node	MIT
Typescript	Microsoft Corp.	2.5.2	language for application scale JavaScript development	Apache-2.0
Ubuntu	Canonical	14.04 LTS	Linux OS	GPL
underscore	Jeremy Ashkenas	1.8.3	Functional programming utilities for JS	MIT
Url-loader	Tobias Koppers @sokra	0.5.7	url loader module for webpack	MIT
Uws	https://github.com/uNetworking/uWebSockets		High performance websocket library	zlib
validator	https://github.com/chriso/validator.js	7.0.0	String sanitization	MIT
Videogular	https://github.com/2fdevs/bowervideogular	1.4.4	HTML5 video player for AngularJS	MIT
Videogular-buffering	https://github.com/2fdevs/bowervideogular-buffering	1.4.4	Videogular buffering plugin	MIT
videojs-contrib-hls	Brightcove, Inc	5.3.3	HLS library for video.js	Apache-2.0
vinyl-buffer	Hugh Kennedy	1.0.0	Convert streaming vinyl files to use buffers	MIT
vinyl-source-stream	Hugh Kennedy	1.1.0	Use conventional text streams at the start of your gulp or vinyl pipelines	MIT
vinyl-transform	Hugh Kennedy	1.0.0	Use standard text transform streams to write fewer gulp plugins	MIT
Vjs-video	Lonny Gomes	0.1.10	An angular js directive for video.js	MIT
Webpack	Tobias Koppers @sokra	2.2.1	Packs CommonJs/AMD modules for the browser.	MIT
Webpack-dev-server	Tobias Koppers @sokra	1.16.3	Serves a webpack app. Updates the browser on changes	MIT
Webpack-manifestplugin	Dane Thurber	1.1.0	webpack plugin for generating asset manifests	MIT
Whatwg-fetch	https://github.com/github/fetch#readme	2.0.2	A window.fetch polyfill.	MIT
winston	Charlie Robbins	2.3.1	Logging	MIT
wolfssl	Todd	3.10.2	Small, fast, portable implementation of TLS/SSL for embedded devices	Commercial
ws	https://github.com/websockets/ws	2.2.1	Websocket client/server	MIT
XCGLogger	https://github.com/DaveWoodCom/XCGLogger	4.0.0	Comprehensive logging	MIT
xml2js	Marek Kubica	0.4.17	Job Queue for Redis	MIT
xml2json	Buglabs	0.11.0	Converts xml to json and vice-versa, using node-expat.	MIT
zlib	Jean-loup Gailly, Mark Adler	1.2.11	Compression library	MIT
zmq	ZeroMQ.org	4.2.2	Lightweight messaging library	LGPLv3

API + SDK

Open Integration

The Cloudvue API (application programming interface), SDK (software developer kit) and software libraries are designed to enable third-party applications to have secure access to the platform.

For detailed information about the Cloudvue API, visit: <https://gateway.cloudvue.com/docs/>

The API and SDK are available to anyone for the development of mobile apps and web interfaces with instant access to live and recorded video as well as applications for cloud-based video processing such as machine learning, artificial intelligence, and analytics (such as people counting, facial recognition, heat maps, motion detection, and license plate identification). Integrations between platforms can be unidirectional or bi-directional. The API and SDK also enable the Cloudvue platform to ingest data (motion, temperature, humidity, facial identification, and other analytics or event data) and display it directly into the interface.

Network Requirements

Setting up your Network for Cloudvue

Below are the networking requirements for Cloudvue Gateways and Illustra Cloud Cameras to work properly:

- Minimum upload bandwidth requirement of 64kbps per each Cloudvue Gateway (regardless of how many cameras are connected to the gateway) or per each Illustra Cloud Camera
- Open/allow incoming and outgoing traffic on port 443 (TLS 1.2 or higher) and port 123 for network time protocol (NTP)
- Whitelist the following domains if required: *.cloudvue.com and *.blob.core.windows.net. (note that there are a lot of IPs under the Windows blob core domain, so make sure there's no other firewall rule blocking one of them)

Optional setting only required for remote technical support services: open/allow both incoming and outgoing traffic on port 7627.

Service Descriptions

Video Services Available for Cloudvue

Following are the service options available for both Cloudvue Gateways and Illustra Cloud Cameras.

Cloud VMS Service (TCSVMS)

Minimum service. Includes both Security Suite and Enterprise Manager.

Security Suite: Unlimited users. Managed permissions for remote access to live and recorded video from web UI and iOS /Android mobile apps. Global and site mapping services. Real time alerts. Includes 10 hours of cloud stored HD bookmarked video. Heatmaps and motion analytics reporting. Hyper View high speed video search. SSO and 2FA. Also includes firmware upgrades, feature updates and security upgrades. Phone and online technical support. 99.99% uptime performance guarantee.

Enterprise Manager: Unlimited device and user management. Real time status alerts. Detailed audit logging. Global status mapping services. Real time bandwidth, user, device and service dashboards. Firmware release management. Subscriptions management. Remote trouble shooting, speed testing, factory reset, reboot, disable, health check and firmware updates. SSO and 2FA. Phone and online technical support. 99.9% uptime performance guarantee.

Cloud Storage Services (TCSVH)

Includes all the Cloud VMS Services above plus triple redundant cloud recorded video storage with unlimited remote access. Minimum storage 7 days and maximum of 5 years. Phone and online technical support. 99.99% uptime performance guarantee.

Archival Cold Cloud Storage Services (TCSVC)

Includes all the Cloud VMS Services above plus triple redundant archival cloud recorded video storage with unlimited remote access. Minimum storage 6 months and maximum of 5 years. First 14 days are stored in hot storage for instant access and balance of storage is in cold storage with maximum retrieval time of 15 hours. Phone and online technical support. 99.99% uptime performance guarantee.

Patents

Intellectual Property and Innovation

Innovation and intellectual property protection are critical to secure continuous platform operation and the end customer's right to operate services without interference. Cloudvue is backed by an industry leading portfolio of 1,000 granted utility patent claims covering dozens of critical innovations in cloud security services.

To learn more about intellectual property at Johnson Controls, visit our website at: <https://www.johnsoncontrols.com/legal/patents>.

Design and Engineering

Design and Engineering Support

Contact your authorized Cloudvue dealer for details on cloud system design, installation support, operations management, and other cloud support programs and visit our website at www.cloudvue.io for additional information.